STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

COMMONWEALTH EDISON COMPANY

Petition for approval of delivery services tariffs and tariff revisions and of residential delivery services implementation plan, and for approval of certain other amendments and additions to its rates, terms, and conditions No. 01-

Direct Testimony of

MICHAEL F. BORN, P.E.

Consulting Engineer,
Distribution Planning Department
Commonwealth Edison Company

OFFICIAL FILE

I.C.C. DOCKET NO. 11-0423

Com Ed Exhibit No. 17.0

Witness BORN

Date 11-6-01 Reported Sm

- 1 Q. Please state your name and business address.
- 2 A. Michael F. Born. My business address is 1319 South First Avenue, Maywood, Illinois.
- 3 Q. By whom and in what position are you employed?
- 4 A. I am employed by Commonwealth Edison Company ("ComEd") as a Consulting
- 5 Engineer in the Distribution Planning Department, which is part of the System
- 6 Engineering and Planning organization.
- 7 Q. What is the purpose of your testimony in this proceeding?
- 8 A. The purpose of my testimony is to describe the engineering analysis of assets utilized for
- 9 transmission and distribution purposes by ComEd, and to present ComEd's determination
- of the losses incurred with the use of distribution facilities.

Professional Qualifications & Experience

- 12 Q. Please describe your educational background.
- 13 A. I received a Bachelor of Science Degree in Electrical Engineering from Purdue
- University in 1971, and have taken a number of post-graduate courses in power
- engineering from the Illinois Institute of Technology. I have also taught Engineering
- Economics courses to numerous engineers and accountants. These courses covered
- topics including the analysis of engineering alternatives and the calculation of the cost
- and present value of revenue requirements of capital projects.
- 19 Q. Are you licensed as a Professional Engineer in the State of Illinois?
- 20 A. Yes. I have been a Licensed Professional Engineer in the State of Illinois since 1976.

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Q. Please describe your responsibilities as a Consulting Engineer in the Distribution
Planning Department.

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- I am the key ComEd technical consultant to the professional engineers and planners Α. responsible for the evaluation and planning of modifications, reinforcements, upgrades, and expansions to ComEd's distribution network and to the portions of ComEd's transmission system which supply it, system-wide. The Distribution Planning Department, with which I work, is responsible for analysis of reported and forecast loads on various portions of ComEd's system (including both transmission substations and the transmission-distribution centers and distribution centers which supply electricity to the lower-voltage distribution system). These forecasts are used in order to assess whether there is, or will be, a need to change or reinforce the system in order to better serve our customers. Our function includes the analysis of the utilization of the distribution system by both retail and non-retail users. In this position, and in my prior position, I served as the leader of a team of engineers responsible for identifying the local distribution facilities in ComEd's refunctionalization of transmission assets during 1999 and of similar teams conducting subsequent reviews of transmission and distribution assets during 2001.
- Q. Please briefly describe the prior positions you have held at ComEd.
- A. In my nearly 30 years at ComEd, I have served in a wide variety of transmission and distribution engineering and planning roles. Early in my engineering career at ComEd, I worked in a Division Engineering office and at the System Technical Center planning and evaluating various distribution systems, including both lines and substations.

 Subsequently, I served as District Engineer for the DeKalb District, responsible for all of

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the engineering operations in the District, including those relating to the planning and maintenance of the distribution service. I also supervised the various field engineers assigned to the District.

In 1978, I became the Distribution Planning Supervisor for the Northern Division, responsible for overseeing the planning function throughout the Division that included the north and northwest suburbs of Chicago. My duties included the evaluation of existing distribution systems, including both lines and substations, and the planning of reinforcements, upgrades, and expansions where required to serve our customers.

In 1983, I transferred to ComEd's headquarters, as a Senior Engineer in the System Planning Department. Thereafter, in 1988, I was promoted to Section Engineer in charge of the Distribution Planning Section of the System Planning Department, which position I held until 1993, when I became ComEd's Substation Planning Engineer as a result of centralizing distribution planning activities. As ComEd's Substation Planning Engineer, I had additional duties in connection with a variety of distribution capacity enhancement projects. In 1998, the Distribution Planning and Reliability Department was replaced by the Transmission and Distribution Planning Department and I was given responsibility for oversight of the planning for capacity-related distribution reinforcements and distribution-supply projects. I began my current assignment in March 2000, reporting to the Director of Distribution Planning.

- 63 Q. Have you served as a member of any professional organizations, committees, or task 64 forces, relating to electrical engineering?
- 65 A. I am currently a Senior Member of the Institute of Electrical and Electronics Engineers, 66 commonly known as "IEEE," and am a Member of the IEEE Power Engineering Society.

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- I have served on an Electric Power Research Institute Task Force studying methods of evaluating and planning generating capacity expansion. I also served for several years on the Working Group of the Mid-America Interconnected Network, commonly known as "MAIN," that assessed adequacy of generating capacity.
- 71 Q. Are you familiar with ComEd's electrical transmission and distribution systems?

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72 A. Yes. Through my various experiences with ComEd, I have become familiar with the
73 components of these systems and how they functionally affect the flow of power through
74 ComEd's system and to ComEd's customers. I am especially familiar with the individual
75 facilities that have been functionalized during the studies that I supervised.

Functionalization of Transmission and Distribution Assets and Expenses

- Q. Please provide a general description of the transmission and distribution facilities that
 comprise ComEd's delivery system.
- A. ComEd's current transmission and distribution system contains the following major components: generating station terminals; bulk power transmission substations ("TSSs"); non-bulk power TSSs; transmission distribution centers ("TDCs"); electric service stations ("ESSs"); the 765 kV subsystem; the 345 kV subsystem; the 138 kV bulk power subsystem; the 138 kV non-bulk power subsystem; the 69 kV subsystem; the 34 kV subsystem; and various other, typically lower-voltage, facilities.
- 85 Q. Have you reviewed the portion of the direct testimony of ComEd witness Jennifer 86 Sterling, ComEd Exhibit 16.0, concerning the purpose of functionalization and the 87 principles applicable to functionally separating transmission and distribution facilities?

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- Yes, I have. I am familiar with and understand these principles and their application to A. 88 electric systems. 89
- Were you involved with the preparation of ComEd's delineation of its transmission and Q. 90 local distribution addressed in Illinois Commerce Commission Docket No. 98-0894? 91
- Yes, I was. I was involved in developing the guidelines used by ComEd to reclassify its 92 A. facilities as either transmission or distribution, and supervised the project to apply these 93 guidelines on an asset by asset basis. As I testified earlier, I was also the lead engineer on 94 the team responsible for actually functionalizing the assets in accordance with those 95 principles. 96
- Did ComEd receive approval for its 1999 delineation of transmission and distribution Q. 97 assets? 98
- Yes, it has. In July 1999, ComEd received the approval of the Illinois Commerce 99 Α. Commission in Docket No. 98-0894 to classify its Transmission and Distribution assets 100 101 on a functional basis consistent with the seven indicators of local distribution as described in FERC Order No. 888 (the FERC "Seven Factor Test"). Subsequently, the 102 Illinois Commerce Commission approved delivery services rates based upon that 103 104 reclassification in Docket 99-0117. The FERC also approved this reclassification in a joint proceeding, entitled MidAmerican Energy Co., et al. 90 FERC ¶ 61,105 (2000), 105 along with the reclassifications of other Illinois utilities that had applied the FERC 106 standards in a manner similar to that used by ComEd.

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- 108 Q. How has ComEd continued to maintain those assets on its books?
- 109 A. ComEd has continued to maintain these assets on its books in the manner approved by
 110 the Illinois Commerce Commission and FERC in the above proceedings and as detailed
 111 in compliance filings made by ComEd.
- Please describe the functionalization of assets in ComEd's rate base that were placed into service after that study, or that have been significantly modified to scope of function.
- 114 A. ComEd has continued to functionalize these assets in accordance with the FERC Seven115 Factor Test and the process accepted by our regulators in 1999 and 2000. An analysis of
 116 transmission assets placed in service during 1998 and through October 1999 was
 117 conducted during late 1999. This classification of assets was utilized as the basis of the
 118 transfer of certain transmission assets to distribution and production accounts that was
 119 reported in ComEd's FERC Form 1 for 1999.
- 120 Q. Has there been any additional analyses of assets placed in service since October 1999?
- 121 A. Yes. A review of all transmission and distribution projects placed in service during 1999 122 and 2000 was conducted in March 2001. In some cases, these were assets that were not yet functionalized; those assets were correctly assigned by our team. In some cases, 123 ComEd accountants and project staff had already made initial assignments. In these 124 125 cases, those assignments were reviewed and verified, and assets were refunctionalized as 126 necessary to ensure that they were placed in the appropriate accounts prior to the 127 development of ComEd's rate base and revenue requirement. In addition, during this 128 process, improvements were made to ComEd's project cost recording system so that, 129 going forward, asset costs will be placed in the correct accounts when the projects are

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130	placed in service. As part of this process, we have also provided ComEd's accounting
131	and project staff with additional training in determining the appropriate asset accounts.
132	Hopefully, this will minimize or even eliminate the need for separate engineering review
133	of functionalization in the future.

- Q. After conducting this review, have you reached a conclusion regarding the Distribution

 Plant in ComEd's state-jurisdictional rate base?
- 136 A. Yes, I have. ComEd's Distribution Plant is functionalized in accordance with the FERC

 137 Seven-Factor test, in a manner consistent with that approved by the Commission in

 138 Docket No 98-0894.
- Q. Are there any analogous principles applicable to how ComEd should assign its expenses to the transmission or distribution function?
 - A. Yes. Principles equivalent to those used to functionalize assets can often be employed. In general, if an expense relates to a functionalized asset or assets, it should be assigned in a similar manner. Likewise, expenses not tied to specific assets can be assigned in a manner that takes into account the proportion thereof related to the transmission or distribution function, in a manner similar to the asset functionalization. The allocation of transmission, distribution, and Administrative & General expenses is discussed in the testimony of other ComEd witnesses.

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Distribution Losses

- 149 Q. What are distribution losses?
- Distribution losses are the portion of the electric energy that is input into the distribution
 system and consumed as part of its function. This energy is necessarily lost in the
 performance of the distribution function and it not metered as consumed at the
 customer's premises. These losses may take the form of heat, of corona, or of energy lost
 through the production of electric and magnetic fields. Losses can be minimized
 somewhat by good system design, as ComEd does, but in the end distribution losses are
 an inevitable consequence of the delivery of electricity.
- 157 Q. Please explain how the proposed distribution loss factors in Rate RCDS were determined.
 - A. ComEd performed a Real Power Loss Study and from that study, distribution losses attributable to each class were determined for each month during Energy Peak Periods and Energy Off-Peak Periods. The Energy Peak Periods extend from 9:00 a.m. to 10:00 p.m. Monday through Friday, except on days that certain holidays are observed. The Energy Off-Peak Periods include all other hours. The resulting class distribution losses and corresponding class loads were subtotated for the summer months, the non-summer months, and the twelve-month annual periods. Distribution loss factors were then calculated for each of these periods by dividing the distribution losses by the corresponding class load. These results are attached hereto as Exhibit 17.1 The distribution loss factors from this summary are proposed to be used in calculating ComEd's distribution rates.

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169	O.	Are transmission losses included in these distribution loss factors?
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- 170 A. No. Transmission losses are not included in these factors. Transmission system losses
 171 are addressed in the Company's FERC-jurisdictional Open Access Transmission Tariff.
- 172 Q. Are you familiar with ComEd's determination of its distribution losses in prior rate 173 proceedings?
- 174 A. Yes, I am.
- 175 Q. Have such loss studies been approved by the Illinois Commerce Commission?
- 176 A. Yes, they have.
- 177 Q. How does the methodology ComEd used in its current loss study compare with that used
 178 by ComEd in prior studies approved by the Illinois Commerce Commission?
- 179 A. The methodology ComEd employed in its current loss study is consistent with that used
 180 by ComEd in the past and approved by the Illinois Commerce Commission in prior
 181 ComEd rate proceedings.
- 182 Q. How do the proposed loss factors compare to the loss factors contained in existing Rate
 183 RCDS?
- 184 A. The updated loss factors are generally lower than the loss factors reflected in the current
 185 Rate RCDS. The annual calculated distribution loss factor for the 2000 test year is
 186 5.92%. This compares to a factor of 6.21% contained in existing Rate RCDS. This
 187 variance is consistent with that observed in a comparison of Commonwealth Edison
 188 Company FERC Form 1, Page 401 prepared for the year 2000 and for the year 1997. The

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year 2000 report yields an annual distribution loss factor of 5.92%, while the corresponding figure for 1997 was 6.28%. A discussion of the comparison of the calculated loss factor and the loss factor obtained from the FERC Form data for the sample year is contained in Exhibit 17.2. The reduced loss factor is primarily due to the decrease in the number of 4kV transformers on the distribution system, primarily through replacement with transformers supplied from the 34 kV or 12 kV systems. More customers are also served directly from 138-12 kV transformers, thus eliminating a double transformation, and the associated losses.

- 197 Q. Does this conclude your direct testimony?
- 198 A. Yes, it does.

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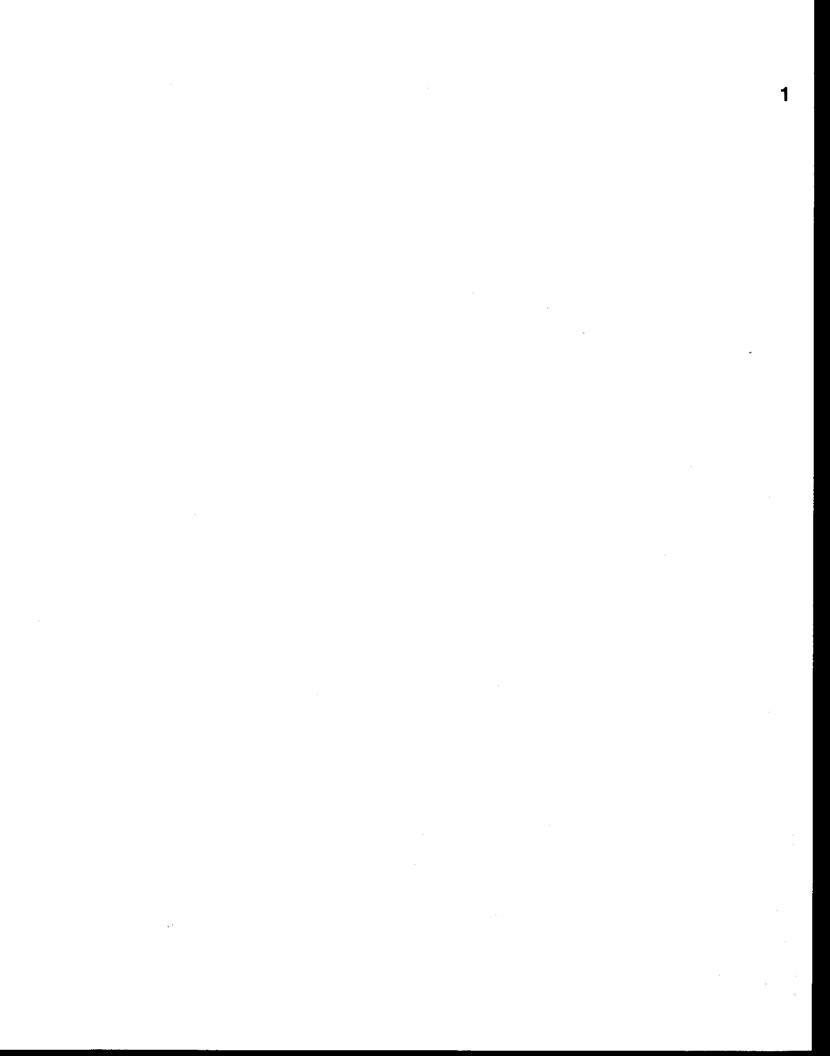
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Commonwealth Edison Company Distribution Loss Study (1) Residential: Single Family with no Space Heat

		Energy Peak Period (3)			Ene	ergy Off-Peak Period	d (3)	Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		607,752	43,897	7.22%	930,693	66,607	7.16%	1,538,445	110,504	7.18%
February		534,987	38,483	7.19%	749,079	53,903	7.20%	1,284,066	92,386	7.19%
March		532,314	38,453	7.22%	693,388	51,137	7.37%	1,225,702	89,590	7.31%
April		450,069	32,449	7.21%	699,792	51,757	7.40%	1,149,861	84,206	7.32%
May		519,531	37,611	7.24%	687,272	51,313	7.47%	1,206,803	88,924	7.37%
June	S (4)	613,901	45,499	7.41%	814,728	61,388	7.53%	1,428,629	106,886	7.48%
July	S (4)	671,620	52,494	7.82%	1,162,848	87,366	7.51%	1,834,468	139,859	7.62%
August	S (4)	988,451	84,630	8.56%	1,093,430	82,756	7.57%	2,081,881	167,386	8.04%
September	S (4)	597,109	46,388	7.77%	1,002,820	77,357	7.71%	1,599,929	123,745	7.73%
October	. ,	492,909	35,733	7.25%	692,195	51,547	7.45%	1,185,104	87,280	7.36%
November		524,277	37,606	7.17%	795,580	57,568	7.24%	1,319,857	95,174	7.21%
December		640,035	46,906	7.33%	1,008,785	72,460	7.18%	1,648,820	119,366	7.24%
Subtotals:								•		
Summer Period	d	2,871,081	229,010	7.98%	4,073,827	308,866	7.58%	6,944,907	537,876	7.74%
Nonsummer Pe	eriod	4,301,874	311,138	7.23%	6,256,784	456,291	7.29%	10,558,658	767,429	7.27%
Annual		7,172,955	540,148	7.53%	10,330,611	765,158	7.41%	17,503,565	1,305,306	7.46%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Residential: Single Family with Space Heat

		F	nergy Peak Period (3)	Ene	rgy Off-Peak Period	i (3)	Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H)/(G)
January		58,459	5,051	8.64%	92,997	7,776	8.36%	151,455	12,827	8.47%
February		47,914	3,815	7.96%	75,274	6,040	8.02%	123,189	9,856	8.00%
March		38,961	2,840	7.29%	55,558	4,046	7.28%	94,519	6,886	7.29%
April		30,253	2,191	7.24%	50,510	3,650	7.23%	80,764	5,841	7.23%
May		23,460	1,766	7.53%	33,501	2,650	7.91%	56,961	4,416	7.75%
June	S (4)	23,386	1,764	7.54%	29,968	2,451	8.18%	53,354	4,215	7.90%
July	S (4)	22,597	1,665	7.37%	34,097	2,808	8.23%	56,694	4,473	7.89%
August	S (4)	30,277	2,197	7.26%	31,117	2,532	8.14%	61,395	4,729	7.70%
September	S (4)	19,393	1,530	7.89%	31,472	2,58 7	8.22%	50,865	4,117	8.09%
October		21,845	1,693	7.75%	31,822	2,586	8.13%	53,667	4,279	7.97%
November		31,121	2,292	7.37%	49,031	3,577	7.30%	80,152	5,870	7.32%
December		51,434	4,295	8.35%	87,236	7,017	8.04%	138,669	11,313	8.16%
Subtotals:								,		
Summer Period		95,653	7,157	7.48%	126,654	10,377	8.19%	222,307	17,534	7.89%
Nonsummer Po		303,447	23,944	7.89%	475,929	37,344	7.85%	779,376	61,288	7.86%
Annual		399,101	31,100	7.79%	602,583	47,722	7.92%	1,001,683	78,822	7.87%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Residential: Multi Family with no Space Heat

ComEd Exhibit 17.1 Real Power Losses Page 3 of 23

		Е	nergy Peak Period ((3)	Ene	ergy Off-Peak Period	d (3)	Total		
	•	Energy		Distribution	Energy	•	Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		115,758	9,062	7.83%	196,772	15,091	7.67%	312,530	24,153	7.73%
February		105,513	8,159	7.73%	163,728	12,441	7.60%	269,241	20,599	7.65%
March		106,854	8,243	7.71%	155,060	11,806	7.61%	261,915	20,049	7.65%
April		95,452	7,305	7.65%	158,908	12,103	7.62%	254,360	19,408	7.63%
May		112,723	8,719	7.73%	177,427	13,487	7.60%	290,150	22,206	7.65%
June	S (4)	125,582	9,743	7.76%	184,435	14,290	7.75%	310,017	24,033	7.75%
July	S (4)	129,209	10,625	8.22%	232,517	18,403	7.91%	361,726	29,028	8.02%
August	S (4)	183,082	16,141	8.82%	224,113	18,004	8.03%	407,195	34,145	8.39%
September	S (4)	115,168	9,295	8.07%	206,429	16,653	8.07%	321,596	25,948	8.07%
October	, -	108,612	8,372	7.71%	158,511	12,080	7.62%	267,123	20,452	7.66%
November		103,577	8,061	7.78%	172,293	13,149	7.63%	275,871	21,210	7.69%
December		121,015	9,638	7.96%	208,637	16,153	7.74%	329,652	25,791	7.82%
Subtotals:								,		
Summer Period	i	553,041	45,803	8.28%	847,493	67,350	7.95%	1,400,534	113,153	8.08%
Nonsummer Pe	riod	869,503	67,558	7.77%	1,391,337	106,309	7.64%	2,260,841	173,868	7.69%
Annual		1,422,545	113,361	7.97%	2,238,830	173,659	7.76%	3,661,375	287,020	7.84%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Residential: Multi Family with Space Heat

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		E	nergy Peak Period ((3)	Ene	ergy Off-Peak Perio	d (3)	Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		111,125	11,472	10.32%	185,356	18,689	10.08%	296,481	30,161	10.17%
February		87,945	8,251	9.38%	148,230	14,230	9.60%	236,175	22,481	9,52%
March		63,570	4,973	7.82%	105,020	8,435	8.03%	168,589	13,408	7.95%
April		51,413	3,950	7.68%	84,480	6,477	7.67%	135,893	10,428	7.67%
May		40,701	3,232	7.94%	59,651	4,861	8.15%	100,351	8,093	8.06%
June	S (4)	36,232	2,981	8.23%	51,542	4,411	8.56%	87,774	7,392	8.42%
July	S (4)	33,806	2,743	8.11%	62,659	5,194	8.29%	96,464	7,937	8.23%
August	S (4)	52,385	4,074	7.78%	61,811	4,923	7. 96 %	114,196	8,997	7.88%
September	S (4)	34,151	2,828	8.28%	58,481	4,947	8.46%	92,632	7,775	8.39%
October	• -	27,213	2,548	9.36%	46,476	4,252	9.15%	73,689	6,800	9.23%
November		44,753	3,555	7.94%	76,246	6,030	7.91%	121,000	9,585	7.92%
December		101,439	10,040	9.90%	184,382	17,935	9.73%	285,820	27,976	9.79%
Subtotals:								,		
Summer Period	i	156,574	12,626	8.06%	234,492	19,475	8.31%	391,066	32,101	8.21%
Nonsummer Pe	eriod	528,160	48,022	9.09%	889,839	80,910	9.09%	1,417,999	128,932	9.09%
Annual		684,734	60,648	8.86%	1,124,331	100,385	8.93%	1,809,065	161,033	8.90%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

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Commonwealth Edison Company Distribution Loss Study (1) Residential: Fixture-included Lighting Customers

		E	nergy Peak Period (3)	Ene	rgy Off-Peak Period	i (3)	Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		213	22	10.33%	657	61	9.28%	870	83	9.54%
February		195	20	10.09%	570	52	9.17%	765	72	9.40%
March		161	17	10.69%	533	50	9.29%	694	67	9.62%
April		129	14	11.19%	475	45	9.56%	604	60	9.91%
May		75	10	13.48%	471	46	9.75%	546	56	10.26%
June	S (4)	56	9	15.47%	431	41	9.60%	487	50	10.27%
July	S (4)	90	11	11.98%	497	49	9.77%	587	59	10.11%
August	S (4)	132	15	11.55%	518	48	9.34%	650	64	9.79%
September	S (4)	135	15	10.85%	555	53	9.51%	690	67	9.77%
October	- 、 /	197	20	10.15%	621	57	9.17%	818	77	9.40%
November		213	21	9.93%	604	56	9.30%	817	77	9.46%
December		230	22	9.76%	677	62	9.19%	907	85	9.33%
Subtotals:								,		
Summer Period		413	49	11.94%	2,001	191	9.55%	2,414	240	9.96%
Nonsummer P	eriod	1,413	147	10.40%	4,608	429	9.32%	6,022	576	9.57%
Annual		1,826	196	10.75%	6,610	621	9.39%	8,436	817	9.68%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: With Only Watt-hour Only Meters

		E	energy Peak Period ((3)	Ene	rgy Off-Peak Perio	1 (3)	Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		32,294	2,630	8.14%	31,590	2,207	6.99%	63,884	4,836	7.57%
February		29,910	2,351	7.86%	27,020	1,891	7.00%	56,930	4,242	7.45%
March		30,596	2,335	7.63%	25,834	1,829	7.08%	56,430	4,164	7.38%
April		25,510	1,923	7.54%	25,368	1,812	7.14%	50,878	3,735	7.34%
May		28,764	2,196	7.63%	23,879	1,732	7.25%	52,643	3,928	7.46%
June	S (4)	31,755	2,532	7.97%	24,860	1,785	7.18%	56,615	4,317	7.62%
July	S (4)	28,673	2,348	8.19%	29,547	2,107	7.13%	58,220	4,455	7.65%
August	S (4)	36,207	3,030	8.37%	26,234	1,871	7.13%	62,441	4,900	7.85%
September	S (4)	26,996	2,095	7.76%	26,769	1,911	7.14%	53,765	4,005	7.45%
October -	` '	27,853	2,077	7.46%	24,966	1,785	7.15%	52,818	3,862	7.31%
November		26,848	2,044	7.61%	27,620	1,943	7.04%	54,469	3,987	7.32%
December		29,917	2,370	7.92%	35,291	2,455	6.96%	65,208	4,825	7.40%
Subtotals:								,		
Summer Perio	Summer Period 123,631		10,005	8.09%	107,410	7,672	7.14%	231,040	17,67 7	7.65%
Nonsummer P		231,692	17,925	7.74%	221,567	15,655	7.07%	453,260	33,580	7.41%
Annual		355,323	27,930	7.86%	328,977	23,327	7.09%	684,300	51,257	7.49%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: 0 kW up to and including 25 kW

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		E	nergy Peak Period (3)	Ene	rgy Off-Peak Period	d (3)	Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		144,884	11,031	7.61%	165,113	11,426	6.92%	309,997	22,457	7.24%
February		135,718	10,073	7.42%	141,347	9,781	6.92%	277,066	19,854	7.17%
March		141,518	10,322	7.29%	138,146	9,598	6.95%	279,664	19,920	7.12%
April		118,261	8,540	7.22%	138,257	9,630	6.97%	256,519	18,170	7.08%
May		140,627	10,487	7.46%	138,371	9,687	7.00%	278,998	20,174	7.23%
June	S (4)	158,852	12,476	7.85%	144,135	10,140	7.03%	302,986	22,616	7.46%
July	S (4)	147,133	11,967	8.13%	175,391	12,350	7.04%	322,524	24,317	7.54%
August	S (4)	190,716	16,108	8.45%	160,434	11,282	7.03%	351,150	27,391	7.80%
September	S (4)	136,701	10,563	7.73%	154,495	10,876	7.04%	291,196	21,439	7.36%
October	. ,	134,673	9,815	7.29%	136,884	9,553	6.98%	271,557	19,368	7.13%
November		125,954	9,238	7.33%	147,348	10,230	6.94%	273,302	19,468	7.12%
December		138,136	10,463	7.57%	179,579	12,450	6.93%	317,715	22,913	7.21%
Subtotals:								,		
Summer Period	i	633,402	51,114	8.07%	634,455	44,649	7.04%	1,267,856	95,763	7.55%
Nonsummer Pe	eriod	1,079,772	79,970	7.41%	1,185,046	82,355	6.95%	2,264,818	162,325	7.17%
Annual		1,713,174	131,084	7.65%	1,819,501	127,004	6.98%	3,532,675	258,087	7.31%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS - Retail Customer Delivery Service - Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 25 kW up to and including 100 kW

		E	nergy Peak Period (3)	Ene	rgy Off-Peak Period	i (3)	Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		260,597	19,129	7.34%	298,379	19,823	6.64%	558,976	38,952	6.97%
February		248,588	17,880	7.19%	259,929	17,233	6.63%	508,517	35,113	6.91%
March		266,581	19,017	7.13%	263,851	17,483	6.63%	530,432	36,499	6.88%
April		224,537	15,840	7.05%	261,216	17,315	6.63%	485,753	33,155	6.83%
May		275,850	20,530	7.44%	266,324	17,784	6.68%	542,174	38,314	7.07%
June	S (4)	306,497	24,002	7.83%	284,718	19,272	6.77%	591,215	43,274	7.32%
July	S (4)	278,019	22,383	8.05%	344,504	23,450	6.81%	622,523	45,834	7.36%
August	S (4)	352,800	29,250	8.29%	311,239	21,220	6.82%	664,039	50,470	7.60%
September	S (4)	262,901	20,111	7.65%	299,995	20,318	6.77%	562,896	40,430	7.18%
October	, ,	260,995	18,802	7.20%	265,784	17,669	6.65%	526,780	36,471	6.92%
November		246,977	18,067	7.32%	287,245	19,111	6.65%	534,222	37,179	6.96%
December		262,046	19,644	7.50%	345,225	23,193	6.72%	607,271	42,838	7.05%
Subtotals:								,		
Summer Period	d	1,200,217	95,747	7.98%	1,240,456	84,261	6.79%	2,440,673	180,008	7.38%
Nonsummer Pe	eriod	2,046,171	148,909	7.28%	2,247,952	149,611	6.66%	4,294,123	298,521	6.95%
Annual		3,246,388	244,657	7.54%	3,488,408	233,872	6.70%	6,734,796	478,529	7.11%

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

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Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customets: Over 100 kW up to and including 400 kW

%87'9 %61'9 %5†'9	261,818 249,245 252,225	188,684,E 66,126,6 718,148,6	%66.2 %86.2 %10.3	842,001 107,002 842,001	568,177,1 478,626,6 604,161,2	%09 [.] 9 %7 t [.] 9 %16 [.] 9	707,811 121,291 828,015	1,718,346 2,992,062 804,017,4		S <u>ubtotals:</u> Summer Period Monsummer Per Annual
%87.9	LS\$'95	172,668	%£0 [.] 9	317'18	984,712	%19 [.] 9	142,22	381,185		Decemper.
%61'9	109'87	\$69°\$8L	%96°S	22,200	755°777	%9 1 .9	104,62	362,152		November
%17'9	ÞEE'6Þ	E16'E6L	%L6°S	73,822	L\$8 ' 86£	%9 †'9	513,213	950,265		October
%1£.8	766 '05	6LL'L08	%66.₹	L79 ` \$7	\$\$9 ⁴ L7\$	% L9 [.] 9	55,366	380,125	(4) S	September
%79'9	62,883	8\$7,646	% 5 0 [.] 9	750,72	447,012	%t I `L	32,845	\$02,246	(4) S	tsuguA
%77`9	25,842	£6 £ '698	%10.9	049'87	<i>ヤ[ヤ゚LLヤ</i>	%76'9	77,172	6LE,26E	(4) S	չյոլ
%tt^9	8ES'SS	t <i>\$</i> 0'£98	%10.9	512,213	554,614	% t 8 ⁻⁹	30,324	965'EÞÞ	(4) S	อนทา
%\$7:9	465, 934	£6£'68L	%66`\$	53,505	392,215	%0 <i>5</i> °9	52,829	LL1'L6E		May
%01'9	896'£†	720,633	%96′⊊	53,239	849'68£	%97′9	50,729	386,055		linqA
%60`9	878'94	₩66,30¢	%E6 ⁻ S	23,063	\$88°93¢	%t7.3	592,52	0L9 '08 E		March
%91.9	6ÞS'LÞ	891 ' 7 <i>LL</i>	%96.₹	0¢0'¢Z	676,E04	%8£.9	53,509	68 † '89E		February
%81'9	7 <i>L</i> 8'05	877,560	%86.≥	807,82	618,644	%EF 9	74'164	747,27E		Ynsunst
$(\mathfrak{D})\setminus (H)=(I)$	$(\mathbf{A}) + (\mathbf{A}) = (\mathbf{H})$	$(\mathbf{G}) + (\mathbf{A}) = (\mathbf{D})$	$(\mathbf{Q}) \setminus (\mathbf{A}) = (\mathbf{H})$	(E)	(D)	$(A) \setminus (B) = (D)$	(B)	(A)		
Distribution Loss Factor (5)	seo I nothudirtsi []	Delivered (2)	Distribution [2]	ssoJ noindritsiQ	Energy Delivered (2)	noituditisid (2) <u>101967 eso.1</u>	szoJ noindirtsiQ	Energy Delivered (2)		
latoT		Energy Peak Period (3) Energy Off-Peak Period (3)								

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Monresidential.

 The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 400 kW up to and including 800 kW

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		E	nergy Peak Period (3)	Ene	rgy Off-Peak Period	c Period (3) Total			
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor	Delivered (2)	Distribution Loss	Loss Factor	Delivered (2)	Distribution Loss	Loss Factor
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		279,514	17,256	6.17%	356,359	20,343	5.71%	635,873	37,599	5.91%
February		270,141	16,453	6.09%	309,342	17,555	5.68%	579,484	34,009	5.87%
March		291,536	17,660	6.06%	316,104	17,874	5.65%	607,640	35,535	5.85%
April		248,211	14,905	6.01%	322,685	18,228	5.65%	570,896	33,133	5.80%
May		306,233	19,384	6.33%	344,736	19,740	5.73%	650,970	39,124	6.01%
June	S (4)	339,274	22,630	6.67%	357,048	20,845	5.84%	696,322	43,475	6.24%
July	S (4)	301,707	20,461	6.78%	410,976	24,035	5.85%	712,683	44,496	6.24%
August	S (4)	372,818	25,622	6.87%	371,412	21,825	5.88%	744,231	47,446	6.38%
September	S (4)	285,658	18,368	6.43%	354,575	20,419	5.76%	640,232	38,787	6.06%
October		305,552	19,267	6.31%	345,351	19,764	5.72%	650,903	39,031	6.00%
November		285,580	18,212	6.38%	365,349	21,097	5.77%	650,929	39,309	6.04%
December		289,973	18,648	6.43%	407,174	23,781	5.84%	697,146	42,428	6.09%
Subtotals:								,		
Summer Period	3	1,299,458	87,081	6.70%	1,494,011	87,123	5.83%	2,793,469	174,204	6.24%
Nonsummer Pe	eriod	2,276,740	141,786	6.23%	2,767,099	158,383	5.72%	5,043,840	300,169	5.95%
Annual		3,576,198	228,866	6.40%	4,261,110	245,507	5.76%	7,837,308	474,373	6.05%

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 800 kW up to and including 1,000 kW

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		E	nergy Peak Period (3)	Ene	ergy Off-Peak Period	d (3)		Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	$(I) \approx (H) / (G)$	
January		90,822	5,597	6.16%	104,377	5,826	5.58%	195,199	11,423	5.85%	
February		86,764	5,225	6.02%	92,425	5,102	5.52%	179,189	10,327	5.76%	
March		92,652	5,518	5.96%	95,868	5,281	5.51%	188,520	10,799	5.73%	
April		79,792	4,760	5.97%	94,526	5,212	5.51%	174,318	9,972	5.72%	
May		98,130	6,182	6.30%	98,999	5,543	5.60%	197,130	11,725	5.95%	
June	S (4)	106,306	7,005	6.59%	104,585	5,948	5.69%	210,891	12,953	6.14%	
July	S (4)	91,878	6,061	6.60%	111,698	6,247	5.59%	203,576	12,308	6.05%	
August	S (4)	111,748	7,400	6.62%	104,596	5,922	5.66%	216,344	13,322	6.16%	
September	S (4)	85,310	5,263	6.17%	96,612	5,332	5.52%	181,922	10,595	5.82%	
October		90,422	5.445	6.02%	94,708	5,215	5.51%	185,130	10,659	5.76%	
November		85,488	5,233	6.12%	99,902	5,548	5.55%	185,390	10,781	5.82%	
December		85,753	5,285 .	6.16%	112,316	6,253	5.57%	198,069	11,539	5.83%	
Subtotals:								,			
Summer Period	i	395,242	25,729	6.51%	417,491	23,449	5.62%	812,732	49,178	6.05%	
Nonsummer Pe	eriod	709,824	43,246	6.09%	793,120	43,980	5.55%	1,502,944	87,225	5.80%	
Annual		1,105,065	68,974	6.24%	1,210,611	67,428	5.57%	2,315,676	136,403	5.89%	

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- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

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Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 1,000 kW up to and including 3,000 kW

		E	nergy Peak Period (3)	Ene	rgy Off-Peak Period	1(3)		Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		344,284	16,200	4.71%	469,506	21,439	4.57%	813,790	37,639	4.63%	
February		346,407	16,355	4.72%	458,622	21,104	4.60%	805,028	37,459	4.65%	
March		380,364	18,026	4.74%	447,406	20,518	4.59%	827,770	38,544	4.66%	
April		325,992	15,435	4.73%	445,743	20,334	4.56%	771,735	35,769	4.63%	
May		402,168	19,868	4.94%	442,340	20,268	4.58%	844,508	40,136	4.75%	
June	S (4)	423,276	21,356	5.05%	444,133	20,411	4.60%	867,409	41,767	4.82%	
July	S (4)	370,998	18,815	5.07%	504,954	23,308	4.62%	875,952	42,123	4.81%	
August	S (4)	443,898	22,425	5.05%	465,284	21,470	4.61%	909,182	43,895	4.83%	
September	S (4)	341,392	16,421	4.81%	470,281	21,839	4.64%	811,673	38,260	4.71%	
October		381,310	18,375	4.82%	474,100	22,048	4.65%	855,409	40,424	4.73%	
November		344,782	16,529	4.79%	503,291	23,196	4.61%	848,074	39,725	4.68%	
December		344,808	16,553	4.80%	545,550	25,488	4.67%	890,357	42,040	4.72%	
Subtotals:							·	,			
Summer Period	ł	1,579,564	79,017	5.00%	1,884,652	87,028	4.62%	3,464,216	166,044	4.79%	
Nonsummer Pe	riod	2,870,114	137,340	4.79%	3,786,557	174,395	4.61%	6,656,671	311,735	4.68%	
Annual		4,449,678	216,357	4.86%	5,671,209	261,423	4.61%	10,120,887	477,780	4.72%	

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- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 3,000 kW up to and including 6,000 kW

		E	nergy Peak Period ((3)	Ene	rgy Off-Peak Period	1 (3)			
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	$(G) \approx (A) + (D)$	$(H) \approx (B) + (E)$	(I) = (H) / (G)
January		201,905	9,608	4.76%	283,012	13,025	4.60%	484,917	22,633	4.67%
February		200,986	9,607	4.78%	261,414	12,116	4.63%	462,399	21,723	4.70%
March		219,397	10,523	4.80%	269,767	12,565	4.66%	48 9 ,164	23,088	4.72%
April		189,296	9,073	4.79%	271,595	12,639	4.65%	460,891	21,712	4.71%
May		232,240	11,592	4.99%	283,283	13,351	4.71%	515,523	24,944	4.84%
June	S (4)	247,276	12,646	5.11%	289,079	13,779	4.77%	536,356	26,424	4.93%
July	S (4)	215,402	11,030	5.12%	322,505	15,097	4.68%	537,907	26,126	4.86%
August	S (4)	252,696	12,770	5.05%	283,800	13,298	4.69%	536,497	26,068	4.86%
September	S (4)	193,915	9,363	4.83%	268,660	12,429	4.63%	462,574	21,792	4.71%
October	~ (-)	215,802	10,448	4.84%	275,623	12,872	4.67%	491,425	23,320	4.75%
November		193,578	9,290	4.80%	278,375	12,875	4.62%	471,953	22,165	4.70%
December		199,356	9,601	4.82%	316,847	14,723	4.65%	516,204	24,324	4.71%
Subtotals:								*		
Summer Period	i	909,289	45,809	5.04%	1,164,044	54,602	4.69%	2,073,333	100,411	4.84%
Nonsummer Pe		1,652,561	79,744	4.83%	2,239,916	104,165	4.65%	3,892,477	183,909	4.72%
Annual	-	2,561,850	125,553	4.90%	3,403,960	158,767	4.66%	5,965,810	284,320	4.77%

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- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 6,000 kW up to and including 10,000 kW

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		E	nergy Peak Period ((3)	Enc	ergy Off-Peak Perio	d (3)		Total	
		Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		85,396	3,936	4.61%	126,974	5,786	4.56%	212,370	9,722	4.58%
February		89,713	4,183	4.66%	122,692	5,648	4.60%	212,405	9,830	4.63%
March		99,420	4,673	4.70%	128,916	6,007	4.66%	228,336	10,680	4.68%
April		84,245	3,934	4.67%	125,708	5,806	4.62%	209,953	9,740	4.64%
May		103,346	5,013	4.85%	135,786	6,401	4.71%	239,132	11,414	4.77%
June	S (4)	106,665	5,221	4.90%	128,988	6,014	4.66%	235,653	11,235	4.77%
July	S (4)	95,394	4,734	4.96%	151,418	7,102	4.69%	246,813	11,836	4.80%
August	S (4)	115,831	5, 77 7	4.99%	136,791	6,450	4.72%	252,622	12,227	4.84%
September	S (4)	92,160	4,457	4.84%	136,988	6,462	4.72%	229,148	10,919	4.76%
October		103,904	5,071	4.88%	140,832	6,738	4.78%	244,735	11,809	4.83%
November		92,188	4,438	4.81%	140,379	6,624	4.72%	232,567	11,062	4.76%
December		96,038	4,669	4.86%	161,771	7,682	4.75%	257,808	12,350	4.79%
Subtotals:								,		
Summer Period	l	410,050	20,189	4.92%	554,186	26,028	4.70%	964,236	46,217	4.79%
Nonsummer Pe	riod	754,249	35,915	4.76%	1,083,058	50,692	4.68%	1,837,307	86,607	4.71%
Annual		1,164,299	56,104	4.82%	1,637,244	76,720	4.69%	2,801,543	132,824	4.74%

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Nonresidential Delivery Service Customers: Over 10,000 kW

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	_	_	nergy Peak Period ((3)	Ene	rgy Off-Peak Perio	d (3)		Total		
	-	Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		311,832	8,717	2.80%	483,749	13,473	2.79%	795,581	22,190	2.79%	
February		315,808	8,761	2.77%	454,513	12,504	2.75%	770,321	21,265	2.76%	
March		350,985	9,716	2.77%	486,789	13,362	2.74%	837,774	23,078	2.75%	
April		299,205	8,313	2.78%	491,070	13,557	2.76%	790,275	21,870	2.77%	
May		381,573	10,880	2.85%	554,632	15,442	2.78%	936,205	26,322	2.81%	
June	S (4)	398,449	11,581	2.91%	555,186	15,640	2.82%	953,635	27,221	2.85%	
July	S (4)	337,490	9,800	2.90%	610,492	17,233	2.82%	947,981	27,033	2.85%	
August	S (4)	401,895	11,712	2.91%	536,684	15,067	2.81%	938,579	26,779	2.85%	
September	S (4)	314,196	8,889	2.83%	513,239	14,276	2.78%	827,434	23,165	2.80%	
October	3 (4)	,	9,889	2.80%	532,285.	14,681		•	•		
		352,933	•	2.78%	,	•	2.76%	885,218	24,570	2.78%	
November		303,435	8,441		494,599	13,683	2.77%	798,034	22,123	2.77%	
December		283,908	7,998	2.82%	489,104	13,785	2.82%	773,012	21,783	2.82%	
Subtotals:								,			
Summer Period	1	1,452,030	41,983	2.89%	2,215,601	62,216	2.81%	3,667,630	104,199	2.84%	
Nonsummer Pe	eriod	2,599,679	72,714	2.80%	3,986,741	110,487	2.77%	6,586,420	183,201	2.78%	
Annual		4,051,709	114,696	2.83%	6,202,342	172,703	2.78%	10,254,051	287,400	2.80%	

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Fixture-included Lighting Nonresidential Delvery Service Customers

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		E	nergy Peak Period ((3)	Ene	rgy Off-Peak Perio	d (3)	_	Total	
		Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
January		3,000	310	10.33%	9,250	859	9.28%	12,251	1,168	9.54%
February		2,748	277	10.09%	8,024	736	9.17%	10,772	1,013	9.40%
March		2,267	242	10.69%	7,503	697	9.29%	9,770	939	9.62%
April		1,812	203	11.19%	6,692	640	9.56%	8,504	843	9.91%
May		1,050	141	13.48%	6,630	646	9.75%	7,680	788	10.26%
June	S (4)	786	122	15.47%	6,072	583	9.60%	6,858	704	10.27%
July	S (4)	1,265	152	11.98%	6,999	684	9.77%	8,264	836	10.11%
August	S (4)	1,860	215	11.55%	7,290	681	9.34%	9,150	896	9.79%
September	S (4)	1,903	206	10.85%	7,809	743	9.51%	9,712	949	9.77%
October		2,779	282	10.15%	8,737	801	9.17%	11,515	1,083	9.40%
November		3,000	298	9.93%	8,504	791	9.30%	11,504	1,089	9.46%
December		3,240	316	9.76%	9,533	876	9.19%	12,773	1,192	9.33%
Subtotals:								,		
Summer Period	I	5,814	694	11.94%	28,171	2,691	9.55%	33,985	3,385	9.96%
Nonsummer Pe	riod	19,896	2,070	10.40%	64,873	6,045	9.32%	84,769	8,115	9.57%
Annual		25,710	2,764	10.75%	93,044	8,735	9.39%	118,754	11,500	9.68%

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Street Lighting Delivery Service Customers - Dusk to Dawn

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		E	nergy Peak Period ((3)	Ene	rgy Off-Peak Period	1 (3)		Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		12,184	1,210	9.93%	37,564	3,351	8.92%	49,747	4,561	9.17%	
February		11,160	1,086	9.74%	32,585	2,876	8.83%	43,745	3,963	9.06%	
March		9,207	952	10.34%	30,468	2,726	8.95%	39,676	3,678	9.27%	
April		7,357	795	10.80%	27,175	2,502	9.21%	34,532	3,297	9.55%	
May		4,263	559	13.10%	26,923	2,523	9.37%	31,187	3,081	9.88%	
June	S (4)	3,191	480	15.06%	24,657	2,279	9.24%	27,848	2,760	9.91%	
July	S (4)	5,137	597	11.62%	28,424	2,671	9.40%	33,561	3,268	9.74%	
August	S (4)	7,553	843	11.16%	29,605	2,664	9.00%	37,158	3,506	9.44%	
September	S (4)	7,728	811	10.49%	31,712	2,899	9.14%	39,440	3,709	9.41%	
October		11,283	1,106	9.80%	35,479	3,130	8.82%	46,762	4,236	9.06%	
November		12,184	1,166	9.57%	34,532	3,088	8.94%	46,715	4,254	9.11%	
December		13,158	1,237	9.40%	38,711	3,421	8.84%	51,870	4,658	8.98%	
Subtotals:								,			
Summer Perio	d	23,608	2,730	11.57%	114,398	10,513	9.19%	138,007	13,243	9.60%	
Nonsummer P	eriod	80,796	8,112	10.04%	263,437	23,616	8.96%	344,233	31,727	9.22%	
Annual		104,404	10,842	10.38%	377,836	34,128	9.03%	482,240	44,970	9.33%	

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

Commonwealth Edison Company Distribution Loss Study (1) Street Lighting Delivery Service Customers - All Other Lighting

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		E	energy Peak Period ((3)	Ene	rgy Off-Peak Period	d (3)		Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		2,757	140	5.09%	4,757	346	7.28%	7,514	487	6.48%	
February		2,757	134	4.86%	4,272	304	7.11%	7,029	438	6.23%	
March		3,020	128	4.23%	4,494	296	6.58%	7,514	423	5.64%	
April		2,626	107	4.08%	4,646	278	5.99%	7,271	385	5.30%	
May		2,888	94	3.24%	4,625	276	5.98%	7,514	370	4.92%	
June	S (4)	2,888	8 7	3.01%	4,383	257	5.85%	7,271	343	4.72%	
July	S (4)	2,494	90	3.61%	5,019	295	5.88%	7,514	385	5.12%	
August	S (4)	3,020	117	3.89%	4,494	290	6.46%	7,514	408	5.42%	
September	S (4)	2,626	109	4.16%	4,646	307	6.61%	7,271	416	5.73%	
October		2,888	138	4.77%	4,625	330	7.14%	7,514	468	6.23%	
November		2,626	137	5.23%	4,646	325	6.99%	7,271	462	6.36%	
December		2,626	144	5.47%	4,888	357	7.30%	7,514	500	6.66%	
Subtotals:								,			
Summer Period	1	11,028	404	3.66%	18,542	1,149	6.19%	29,570	1,552	5.25%	
Nonsummer Pe	eriod	22,188	1,022	4.60%	36,953	2,512	6.80%	59,141	3,534	5.98%	
Annual		33,216	1,425	4.29%	55,495	3,661	6.60%	88,711	5,086	5.73%	

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- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS - Retail Customer Delivery Service - Nonresidential. The Energy Off-Peak Periods are all other hours.
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Commonwealth Edison Company Distribution Loss Study (1) Railroad Delivery Service Customers

		E	nergy Peak Period (3)	Ene	ergy Off-Peak Period	1(3)		Total		
	•	Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	$(C) \approx (B)/(A)$	(D)	(E)	(F) = (E)/(D)	(G)=(A)+(D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		20,268	5 21	2.57%	24,480	562	2.29%	44,748	1,083	2.42%	
February		18,319	441	2.41%	20,176	441	2.19%	38,495	188	2.29%	
March		17,706	394	2.23%	16,903	354	2.09%	34,609	748	2.16%	
Apríl		15,307	341	2.23%	16,160	332	2.05%	31,467	673	2.14%	
May		17,801	409	2.30%	15,897	336	2.11%	33,698	745	2.21%	
June	S (4)	18,996	452	2.38%	16,465	354	2.15%	35,461	807	2.27%	
July	S (4)	16,335	387	2.37%	19,387	413	2.13%	35,722	800	2,24%	
August	S (4)	19,447	458	2.35%	16,731	363	2.17%	36,178	820	2.27%	
September	S (4)	15,994	366	2.29%	15,233	322	2.11%	31,227	688	2.20%	
October	5 (1)	16,771	374	2.23%	14,419	308	2.14%	31,190	682	2.19%	
November		15,415	344	2.23%	17,527	371	2.12%	32,942	715	2,17%	
December		22,734	653	2.87%	33,436	859	2.57%	56,171	1,512	2.69%	
Subtotals:								•			
Summer Period	4	70,772	1,663	2.35%	67,816	1,452	2.14%	138,588	3,115	2.25%	
Nonsummer Po		144,321	3,478	2.41%	158,998	3,562	2.24%	303,319	7,040	2.32%	
Annual		215,093	5,141	2.39%	226,814	5,014	2.21%	441,907	10,155	2.30%	

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- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
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Commonwealth Edison Company Distribution Loss Study (1) Pumping Delivery Service Customers

		E	nergy Peak Period ((3)	Ene	ergy Off-Peak Perio	d (3)		<u>Total</u>		
		Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		21,493	1,561	7.26%	33,156	2,284	6.89%	54,649	3,844	7.03%	
February		20,435	1,445	7.07%	29,150	1,988	6.82%	49,584	3,433	6.92%	
March		21,112	1,446	6.85%	29,218	1,946	6.66%	50,330	3,392	6.74%	
April		19,417	1,370	7.06%	32,043	2,195	6.85%	51,459	3,565	6.93%	
May		23,049	1,698	7.37%	33,065	2,315	7.00%	56,115	4,013	7.15%	
June	S (4)	25,113	1,954	7.78%	33,597	2,452	7.30%	58,710	4,405	7.50%	
July	S (4)	23,164	1,884	8.13%	40,266	3,026	7.52%	63,430	4,910	7.74%	
August	S (4)	26,073	2,024	7.76%	33,174	2,373	7.15%	59,247	4,396	7.42%	
September	S (4)	20,775	1,533	7.38%	33,960	2,423	7.13%	54,735	3,956	7.23%	
October		22,474	1,630	7.25%	32,920	2,293	6.97%	55,394	3,923	7.08%	
November		20,789	1,526	7.34%	33,679	2,374	7.05%	54,467	3,900	7.16%	
December		22,412	1,721	7.68%	38,466	2,833	7.37%	60,878`	4,554	7.48%	
Subtotals:								,			
Summer Period	i	95,125	7,394	7.77%	140,996	10,273	7.29%	236,121	17,667	7.48%	
Nonsummer Pe	riod	171,180	12,397	7.24%	261,696	18,229	6.97%	432,876	30,625	7.07%	
Annual		266,305	19,791	7.43%	402,692	28,502	7.08%	668,997	48,293	7.22%	

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Research Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of Energy Delivered.

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Commonwealth Edison Company Distribution Loss Study (1) Municipalities (Full Requirement Wholesale Customers)

		E	energy Peak Period ((3)	Ene	rgy Off-Peak Period	d (3)			
		Energy		Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H)/(G)
January		68,343	1,552	2.27%	90,985	2,255	2.48%	159,328	3,808	2.39%
February		65,670	1,505	2.29%	79,693	1,995	2.50%	145,363	3,499	2.41%
March		67,920	1,579	2.33%	77,913	2,019	2.59%	145,833	3,598	2.47%
April		58,428	1,363	2.33%	78,163	2,058	2.63%	136,591	3,421	2.50%
May		73,404	1,666	2.27%	83,630	2,131	2.55%	157,033	3,797	2.42%
June	S (4)	82,125	1,845	2.25%	88,594	2,167	2.45%	170,720	4,012	2.35%
July	S (4)	78,449	1,764	2.25%	109,705	2,612	2.38%	188,154	4,376	2.33%
August	S (4)	104,510	2,372	2.27%	100,492	2,373	2.36%	205,002	4,745	2.31%
September	S (4)	72,397	1,643	2.27%	96,347	2,344	2.43%	168,745	3,988	2.36%
October	` '	76,435	1,716	2.25%	92,213	2,246	2.44%	168,648	3,962	2.35%
November		71,106	1,593	2,24%	94,577	2,285	2.42%	165,683	3,878	2.34%
December		73,943	1,653	2.24%	107,746	2,534	2.35%	181,689	4,187	2.30%
Subtotals:								,		
Summer Period	d	337,482	7,624	2.26%	395,138	9,497	2.40%	732,620	17,121	2.34%
Nonsummer Po		555,250	12,628	2.27%	704,920	17,522	2.49%	1,260,169	30,150	2.39%
Annual		892,731	20,252	2.27%	1,100,058	27,019	2.46%	1,992,789	47,271	2.37%

- (1) All units in this attachment are in megawatt-hours unless otherwise indicated.
- (2) Energy Delivered for each customer class is determined from the Company's Load Rearch Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS Retail Customer Delivery Service Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of energy delivered.

		E	energy Peak Period ((3)	Ene	ergy Off-Peak Perio	d (3)		Total		
		Energy		Distribution	Energy		Distribution	Energy		Distribution	
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)	
January		3,080,286	191,514	6.22%	4,281,554	255,681	5.97%	7,361,840	447,195	6.07%	
February		2,924,496	176,509	6,04%	3,762,072	219,986	5.85%	6,686,568	396,495	5.93%	
March		3,048,891	179,244	5.88%	3,659,459	209,072	5.71%	6,708,350	388,316	5.79%	
April		2,599,870	152,177	5.85%	3,646,695	207,752	5.70%	6,246,565	359,929	5.76%	
May		3,111,650	186,198	5.98%	3,726,029	211,907	5.69%	6,837,679	398,105	5.82%	
June	S (4)	3,412,075	212,863	6.24%	3,918,466	227,551	5.81%	7,330,542	440,415	6.01%	
July	S (4)	3,164,791	205,417	6.49%	4,731,610	280,508	5.93%	7,896,401	485,924	6.15%	
August	S (4)	4,093,137	280,654	6.86%	4,345,769	260,075	5.98%	8,438,905	540,729	6.41%	
September	S (4)	2,934,334	183,977	6.27%	4,142,384	247,778	5.98%	7,076,719	431,755	6.10%	
October		2,975,471	176,598	5.94%	3,715,193	211,530	5.69%	6,690,664	388,128	5.80%	
November		2,824,938	169,900	6.01%	3,959,291	226,836	5.73%	6,784,229	396,737	5.85%	
December		3,090,042	195,445	6.32%	4,725,093	282,998	5.99%	7,815,136	478,444	6.12%	
Subtotals:								,			
Summer Period	d	13,604,337	882,911	6.49%	17,138,229	1,015,912	5.93%	30,742,567	1,898,822	6.18%	
Nonsummer P		23,655,643	1,427,586	6.03%	31,475,387	1,825,762	5.80%	55,131,030	3,253,348	5.90%	
Annual		37,259,980	2,310,497	6.20%	48,613,616	2,841,674	5.85%	85,873,596	5,152,171	6.00%	

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- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of energy delivered.

Commonwealth Edison Company Distribution Loss Study (1) All Retail Customer Classes Plus Municipalities

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		Energy Peak Period (3)			Energy Off-Peak Period (3)			Total		
		Energy	· · · · · · · · · · · · · · · · · · ·	Distribution	Energy		Distribution	Energy		Distribution
		Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)	Delivered (2)	Distribution Loss	Loss Factor (5)
		(A)	(B)	(C) = (B) / (A)	(D)	(E)	(F) = (E) / (D)	(G) = (A) + (D)	(H) = (B) + (E)	(I) = (H) / (G)
Tamas ami		2 149 620	102.066	£ 120/	4 273 510	257.026	5,90%	7 531 100	451.002	(600)
January		3,148,629	193,066	6.13%	4,372,539	257,936		7,521,168	451,002	6.00%
February		2,990,166	178,014	5.95%	3,841,765	221,981	5.78%	6,831,931	399,994	5.85%
March		3,116,811	180,824	5.80%	3,737,372	211,091	5.65%	6,854,183	391,914	5.72%
April		2,658,298	153,539	5.78%	3,724,858	209,810	5.63%	6,383,156	363,350	5.69%
May		3,185,054	187,864	5.90%	3,809,658	214,038	5.62%	6,994,712	401,902	5.75%
June	S (4)	3,494,201	214,708	6.14%	4,007,061	229,718	5.73%	7,501,261	444,427	5.92%
July	S (4)	3,243,240	207,181	6.39%	4,841,314	283,120	5.85%	8,084,554	490,300	6.06%
August	S (4)	4,197,647	283,026	6.74%	4,446,261	262,448	5.90%	8,643,907	545,474	6.31%
September	S (4)	3,006,732	185,620	6.17%	4,238,732	250,122	5.90%	7,245,463	435,742	6.01%
October		3,051,906	178,314	5.84%	3,807,406	213,776	5.61%	6,859,312	392,090	5.72%
November		2,896,044	171,493	5.92%	4,053,868	229,121	5.65%	6,949,912	400,614	5.76%
December		3,163,985	197,099	6.23%	4,832,840	285,532	5.91%	7,996,825	482,631	6.04%
Subtotals:								,		
Summer Period		13,941,819	890.535	6.39%	17,533,368	1,025,409	5.85%	31,475,186	1,915,943	6.09%
Nonsummer Period		24,210,893	1,440,214	5.95%	32,180,306	1,843,284	5.73%	56,391,199	3,283,498	5.82%
Annual		38,152,712	2,330,748	6.11%	49,713,674	2,868,693	5.77%	87,866,386	5,199,441	5.92%

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- (2) Energy Delivered for each customer class is determined from the Company's Load Rearch Study.
- (3) Energy Peak Periods are the hours of 9:00 a.m. to 10:00 p.m. on Monday through Friday, except for days that certain holidays are observed, as defined in Rate RCDS - Retail Customer Delivery Service - Nonresidential. The Energy Off-Peak Periods are all other hours.
- (4) "S" designates a month included in the Summer Period subtotals.
- (5) All Distribution Loss Factors in this attachment are expressed as a percentage of energy delivered.

Commonwealth Edison Company Real Power Losses – Distribution Loss Study

ComEd performed a distribution energy loss study for test year 2000. The results of this study are included in Exhibit 17.1. The study was performed using a computer-simulated model of ComEd's distribution system and ComEd's standard load research data, which is also used for other purposes. The load research data for the 12-month period ended December 31, 2000 was used to develop customer class load profiles.

A survey of typical distribution facilities used to supply representative customers in each class was used to allocate class load to the various distribution system elements in the computer model. Such distribution system elements include facilities and equipment such as 138-12 kV transmission distribution centers, 34-12 kV distribution centers, 12 kV distribution feeders, distribution line transformers, etc. Losses in the system elements are the sum of two components, conductor losses and core losses. Conductor losses occur in each system element, and vary as the square of the load on the element. Core losses occur in any element involving transformers, i.e. transmission substations, transmission distribution centers, distribution centers, energy supply stations, network centers and line transformers. Core losses are essentially constant at any load.

The computer model calculated peak hour conductor losses in the various distribution system elements. These calculated losses in the various distribution system elements were then allocated among the customer classes in the same ratio as the classes' relative contribution to the loading on those distribution system elements. The calculated losses for each class for each of the distribution system elements were then added together to determine the distribution system losses attributable to each customer class at the system peak hour. Annual conductor losses were calculated by summing the class peak hour loss times the ratio of the square of the hourly class load to the square of the hourly system load for all hours of the 12 month load research period.

Exhibit 17.1 includes a one summary page for each customer class, which shows the estimated class load and the calculated distribution system losses attributable to the class for each month during Energy Peak Periods and Energy Off-Peak Periods, as well as for the sum of these two periods. The results are totaled for a twelve-month annual period and also subtotaled by the summer and non-summer periods.

The calculated distribution losses can not be validated by measurement of actual system losses. An approximate measurement of distribution losses can be obtained from the following energy supply and usage data. Other than estimated electricity use by the Company business facilities, estimated energy received for losses related to delivery services and the transmission loss factor contained in the ComEd OATT, the data is from Commonwealth Edison Company 2000 FERC Form 1, Page 401a. The distribution losses related to energy sales to Ultimate Consumers, Requirements Sales for Resale (full requirement sales), Energy Furnished without Charge, and Company Use in 2000 are determined to be 5,221,881 megawatt-hours, as follows:

Commonwealth Edison Company Real Power Losses – Distribution Loss Study

2000 Sources and Disposition of Energy

Sources:

	Sources:		
а	Generation	79,417,282	
b	Purchases	39,726,272	
С	Received energy for Delivery Services	8,875,899	
d	Received for DS losses (0.025*c)	221,897	
	Disposition:		
е	Sales to Ultimate Consumers	86,051,503	
f	Sales for Resale Requirements	1,769,993	
g	Sales for Resale Non Requirements	32,801,294	
h	Energy furnished without charge	385,365	
1	Company Use	74,000	
j	Transmission Losses (1.6%) 0.016*(e+f+g+h+i)	1,937,314	
k	Distribution Losses (a+b+c+d) - (e+f+g+h+l+j)	5,221,881	
I	Delivery Sales (e+f+h+l)	88,280,861	
m	Delivery Losses (k/l)		5.92%

Total annual calculated distribution losses for the test year, from Exhibit 17.1, Column (H), are 5,199,441 megawatt-hours for the 12 month period ended December 31, 2000. This equals 5.92% of the 87,866,386 megawatt-hour total annual energy delivered shown in Column (G) in the sample year for the load classes included in the study.

Energy flowing through the distribution system including sales to Ultimate Consumers, Requirements Sales for Resale (full requirement sales), Energy Furnished without Charge, and Company Use in the Test year was 88,280,861 megawatt-hours. Applying the annual distribution loss factor of 5.92%, Column (I) to this total results in losses of 5,226,227megawatt-hours. This compares favorably to the 5,221,881 megawatt-hours estimated distribution losses for 2000 calculated and indicated in the preceding table.